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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,385	10/16/2003	DeQuan Yu	10541-1839	2129

28866 7590 03/29/2006

MACMILLAN, SOBANSKI & TODD, LLC  
ONE MARITIME PLAZA - FOURTH FLOOR  
720 WATER STREET  
TOLEDO, OH 43604

EXAMINER

MILLER, CARL STUART

ART UNIT PAPER NUMBER

3747

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

JP

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/687,385	YU ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Carl S. Miller	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 5-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minagawa ('797) in view of Powell or Tuckey ('455).

Powell teaches the basic structure of applicant's system including a relief valve that produces a fuel pressure that remains relatively constant. The fuel pump produces fuel pressure that is relatively constant since it runs at a constant speed as a result of being fed by a constant voltage. Since the pressure regulator disclosed by applicant appears to be no different from those suggested by Powell, it is not clear how applicant's regulator would be more responsive to engine demand than that of Powell.

Minagawa clearly teaches a fuel system that uses an electrically driven pump and a non-return rail. Instead of using a fuel pressure sensor to determine fuel pressure Minagawa estimates the fuel pressure using flow rates and then sets the injector width based upon the estimated fuel pressure (See column 4, lines 27-30). The flow rates that are used are based upon engine demand in that they are proportional to the current rates to the pump that are, in turn, set by engine demand.

Tuckey teaches a non-return fuel rail that normally operates under a constant fuel flow rate to the rail. Since the system teaches only the pump and the overpressure relief valve between the tank and the rail, the pump output itself must be constant in order to produce this result.

It would have been obvious to modify Minagawa by using the method of Powell or Tuckey to supply fuel pressure to the rail because both systems were non-return fuel rails systems being fed fuel by electrically driven pumps.

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minagawa and Powell or Tuckey as applied to claims 1 and 6 above, and further in view of Gaskins.

Gaskins teaches the use of look-up tables to store input and output data for the control of electric pumps feeding a common rail fuel system.

It would have been obvious to use the tables of Gaskins to store the demand data used in Minagawa because the two references were using similar electric pumps in the same environment.

Applicant's arguments filed March 6, 2006 have been fully considered but they are not persuasive.


The applicant's argument that neither reference applied against Claim 1 in the Final Rejection taught the use of a constant output pump to the rail has been found convincing as has his argument that there was support in the claims for this new limitation in Claim 1. Unfortunately, as shown by Powell and Tuckey, the use of a constant pressure electric pump to supply pressure to a non-return rail is well known in the art and, as noted in the above rejection, the examiner cannot see how the regulator disclosed by the applicant would function any differently than that taught by Powell or Tuckey.

Due to the use of new art against the claims the Final Rejection of 1/30/06 is hereby withdrawn and this action has been made non-final. Finally, applicant's amendment to the specification has been entered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl S. Miller whose telephone number is 571-272-4849. The examiner can normally be reached on MTWTHF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry YUEN, can be reached at 571-272-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Carl S. Miller  
Primary Examiner